

The opinion in support of the decision being entered today was *not* written for publication and is *not* binding precedent of the Board.

Paper No. 11

UNITED STATES PATENT AND TRADEMARK OFFICE

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BEFORE THE BOARD OF PATENT APPEALS  
AND INTERFERENCES

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*Ex parte* WOSSANG CHUN,  
GEORGE W. GRAHAM and ROBERT W. McCABE

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Appeal No. 1998-1584  
Application 08/711,631

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ON BRIEF

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Before GARRIS, WARREN and PAWLIKOWSKI, *Administrative Patent Judges*.

WARREN, *Administrative Patent Judge*.

*Decision on Appeal and Opinion*

We have carefully considered the record in this appeal under 35 U.S.C. § 134, including the opposing views of the examiner, in the answer, and appellants, in the brief, and based on our review, find that we cannot sustain the rejection of appealed claims 1 through 6 under 35 U.S.C. § 103(a) as being unpatentable over Yao et al. (Yao) in view of Mullhaupt, or the rejection of appealed claims 7 through 12 under 35 U.S.C. § 103(a) as being unpatentable over Horiuchi et al. (Horiuchi) in view of Yao.<sup>1,2</sup> We agree with appellants that the examiner has failed to make out a

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<sup>1</sup> See specification, pages 10-11. Claims 13 through 15 are also of record and have been withdrawn by the examiner under 37 CFR § 1.142(b).

*prima facie* case of obviousness with respect to both grounds of rejection.

A *prima facie* case of obviousness is established by showing that some objective teaching, suggestion or motivation in the applied prior art taken as a whole and/or knowledge generally available to one of ordinary skill in the art would have led that person to the claimed invention as a whole, including each and every limitation of the claims, without recourse to the teachings in appellants' disclosure. *See generally, In re Rouffet*, 149 F.3d 1350, 1358, 47 USPQ2d 1453, 1458 (Fed. Cir. 1998); *Pro-Mold and Tool Co. v. Great Lakes Plastics Inc.*, 75 F.3d 1568, 1573, 37 USPQ2d 1626, 1629-30 (Fed. Cir. 1996); *In re Vaeck*, 947 F.2d 488, 493, 20 USPQ2d 1438, 1442 (Fed. Cir. 1991); *In re Fine*, 837 F.2d 1071, 1074-76, 5 USPQ2d 1596, 1598-1600 (Fed. Cir. 1988); *In re Dow Chem. Co.*, 837 F.2d 469, 473, 5 USPQ2d 1529, 1531-32 (Fed. Cir. 1988).

It is readily apparent that the plain language of appealed claims 1 and 7, when considered in light of the written description in the specification as interpreted by one of ordinary skill in this art, *see, e.g., In re Morris*, 127 F.3d 1048, 1054-55, 44 USPQ2d 1023, 1027 (Fed. Cir. 1997), simply requires that the praseodymium oxide must be "loaded onto" the "surface" of either a cerium oxide or a cerium-zirconium oxide "support material" in forming the claimed mixed oxide. This is set forth as a specific step in the method of claim 7. In claim 1, this product-by-process limitation characterizes the product as one in which the praseodymium oxide is deposited onto the surface of the previously formed specified "support material" and thus is included *only* on that surface. *See, e.g., In re Thorpe*, 777 F.2d 695, 697, 227 USPQ 964, 966 (Fed. Cir. 1985). We note here that while we agree with appellants' argument that hafnium oxide is an "indispensable" component of the composite oxide of Yao (brief, pages 6-7), we are of the opinion that appellants have not convincingly established that this oxide would be excluded from claims 1 and 7 through the use of the transitional phrase "consisting essentially of" as this term would be interpreted in light of their specification. Indeed, we find no disclosure in appellants' specification which establishes that hafnium oxide would materially affect the basic and novel characteristics of the claimed mixed oxides. *See Morris*, 127 F.3d at 1055-56, 44 USPQ2d at 1029; *see also PPG Industries Inc. v. Guardian Indus. Corp.*, 156 F.3d 1351, 1354-57, 48 USPQ2d

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<sup>2</sup> Answer, pages 4-7.

1351, 1353-56 (Fed. Cir. 1998) (Patentees “could have defined the scope of the phrase ‘consisting essentially of’ for purposes of its patent by making clear in its specification what it regarded as constituting a material change in the basic and novel characteristics of the invention. The question for our decision is whether PPG did so.”); *In re Herz*, 537 F.2d 549, 551-52, 190 USPQ 461, 463 (CCPA 1976); *cf. Ex parte Boukidis*, 154 USPQ 444 (Bd. App. 1966). Thus, Yao is not distinguished from the claimed invention on this basis.

In comparing the claimed mixed oxides as encompassed by appealed claim 1 with Yao,<sup>3</sup> we note that appellants do not dispute the examiner’s contention that praseodymium oxide can be one of the “oxides of rare earth metals other than cerium” which can be present in the composite oxides of Yao (e.g., col. 2, lines 54-55; see answer, e.g., page 4, third paragraph, first sentence), but submit that the composite oxides of the reference are prepared as “a homogeneous mixture” of the component oxides, with no oxide appearing only on the surface, that is “loaded on,” of the composite (brief, page 7). Indeed, we agree with appellants’ reading of the reference as we find that Yao teaches that the composite oxide can be precipitated from a mixture containing the constituent metal ions, followed by calcining, or obtained through the uniform mixing of the constituent oxides, followed by palletizing and sintering; either process forming a *homogeneous* composite of the oxides (e.g., col. 3, line 36, to col. 4, line 34).

Thus, the argument presented by appellants shifts the burden to the examiner to again establish the factual underpinning of a *prima facie* case of obviousness under § 103(a) in order to maintain the grounds of rejection. *See, e.g., In re Oetiker*, 977 F.2d 1443, 1445, 24 USPQ2d 1443, 1444 (Fed. Cir. 1992). In this case, the examiner must show that one of ordinary skill in the art would have modified the composite oxides of Yao such that the “rare earth metal other than cerium,” such as praseodymium oxide, would have been “loaded on” the surface of a composite first prepared from the other oxides specified in the reference. However, the examiner did not carry this burden in merely contending that the “loaded on” limitation “is not considered to be a patentable distinction because the

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<sup>3</sup> A discussion of Mullhaupt is not necessary to our decision. *See In re Kronig*, 539 F.2d 1300, 1302-04, 190 USPQ 425, 426-28 (CCPA 1976).

resulting composition is essentially the same, metal oxides in combination with the desired support” (answer, page 11).

Indeed, it is not apparent that there is structural similarity between the claimed mixed oxide and the composite oxide of Yao, and to the extent that the examiner is relying on such structural similarity in contending that “a composition formed as a mixture of the support materials and metal oxides is considered to comprise similar properties to the composition wherein a support is ‘loaded’ with metal oxides” (answer, page 11), we cannot find the requisite evidence necessary to establish this position in any reference of record and our search for the same has not been aided by the examiner. *See In re Jones*, 958 F.2d 347, 349-51, 21 USPQ2d 1941, 1943-44 (Fed. Cir. 1992) (“Conspicuously missing from this record is any *evidence*, other than the PTO’s speculation (if it be called evidence) that one of ordinary skill in the herbicidal art would have been motivated to make the modifications of the prior art salts necessary to arrive at the claimed . . . salt.”); *In re Dillon*, 919 F.2d 688, 692-93, 16 USPQ2d 1897, 1901 (Fed. Cir. 1990)(*in banc*) (“This court . . . reaffirms that structural similarity between claimed and prior art subject matter, proved by combining references or otherwise, where the prior art gives reason or motivation to make the claimed compositions, creates a *prima facie* case of obviousness, and that the burden (and opportunity) then falls on an applicant to rebut that *prima facie* case.”); *In re Grabiak*, 769 F.2d 729, 731-32, 226 USPQ 870, 872 (Fed. Cir. 1985) (“[W]e have concluded that generalizations should be avoided insofar as specific chemical structures are alleged to be *prima facie* obvious one from the other. . . . [I]n the case before us there must be adequate support in the prior art for the ester/thioester change in structure, in order to complete the PTO’s *prima facie* case and shift the burden of going forward to the applicant.”); *In re Payne*, 606 F.2d 303, 315, 203 USPQ 245, 254-55 (CCPA 1979) (“An obviousness rejection based on similarity in chemical structure and function entails the motivation of one skilled in the art to make a claimed compound, in the expectation that compounds similar in structure will have similar properties.”).

Similarly, with respect to the method of appealed claim 7, while Horiuchi does indeed disclose processes in which praseodymium oxide is “loaded onto” zirconium oxide as the refractory inorganic oxide support (e.g., cols. 3-4), we must agree with appellants that Horiuchi would not have suggested to one of ordinary skill in this art to use a cerium oxide or a cerium-zirconium oxide as a refractory

inorganic oxide support (e.g., col. 3, lines 7-13). Indeed, the examiner has not established with evidence or scientific explanation why one of ordinary skill in the art would have modified the processes of Horiuchi by using the composite oxide of Yao, which also contains hafnium oxide in addition to cerium oxide and zirconium oxide, as such a support (answer, page 10). *Cf. In re Brouwer*, 77 F.3d 422, 425, 37 USPQ2d 1663, 1666 (Fed. Cir. 1996).

Accordingly, in the absence of evidence necessary to support the examiner's position as we have discussed above, we reverse the rejection of appealed claims 1 through 6 over Yao in view of Mullhaupt and the rejection of appealed claims 7 through 12 over Horiuchi in view of Yao. We find it clear from this record that the examiner has resorted to hindsight gained from appellants' specification and claims in order to reach the conclusion that the claimed mixed oxide and the method for making the same were *prima facie* obviousness over the applied references, which is an inappropriate standard of obviousness under § 103(a). *See generally, W.L. Gore & Associates v. Garlock, Inc.*, 721 F.2d 1540, 1553, 220 USPQ 303, 312-13 (Fed. Cir. 1983) ("To imbue one of ordinary skill in the art with knowledge of the invention . . . when no prior art reference or references of record convey or suggest that knowledge, is to fall victim to . . . hindsight . . . wherein that which only the inventor taught is used against its teacher.").

The examiner's decision is reversed.

*Reversed*

BRADLEY R. GARRIS	)	
Administrative Patent Judge	)	
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	)	
CHARLES F. WARREN	)	BOARD OF PATENT
Administrative Patent Judge	)	APPEALS AND
	)	INTERFERENCES
	)	
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